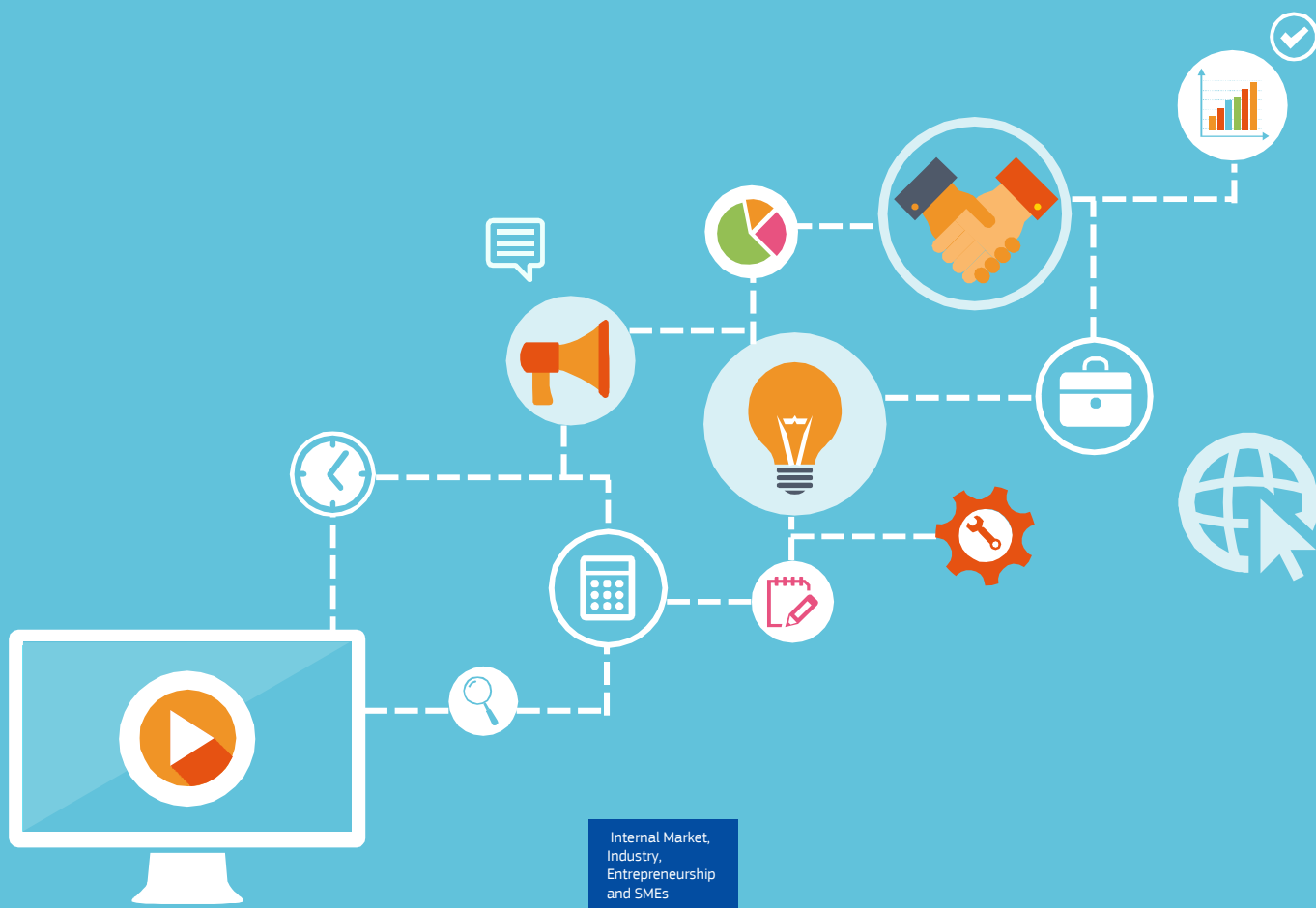




Digital Transformation Monitor

Spain: Industria Conectada 4.0













January 2017





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Fact box for Spain Industria Conectada 4.0 policy initiative

 Policy Lever(s)	Mainly publicly funded with plans to increase industry share, skills-focused and top-down directed, with bottom-up incentives
 Funding Model	Public-private partnerships. Loan and direct aid based system to ensure participation of the private sector with expected leverage effect of 1:2
 Target audience(s)	Enterprises with industrial activity, in particular SMEs and micro-enterprises
 Impact & Focus Areas	Focus on digital enablers, in particular intra and inter-enterprise enablers, with impact areas in employment and competitiveness settings
 Key drivers	Spanish Industry 4.0 model and awareness and dissemination working as enabler
 Key barriers	Ensuring the involvement of all stakeholders from different backgrounds and sectors
 Implementation strategy	Multi-stakeholder consultations with core implementation group of three leaders from business
 Results achieved	Set-up of innovation and research programme in June 2016 and pilot of enterprise support programme
 Budget	€97.5 million connected industry project calls for 2016; related programmes provide additional €68 million (loans and direct aid) for ICT companies and €10 million for innovative clusters
 Uniqueness factor	Strong SME and micro-enterprise and digital transformation focus through specific project calls giving loans to industrial enterprises and through a mentoring programme to guide the implementation of 4.0 for industrial enterprises
 Value-added for policy-makers	Public-private-partnership with strong impetus from the government - supported by a multi-stakeholder consultation process - to develop a Spanish model supported by 3 leaders from business ¹ and an advisory scheme for SMEs
 Expected Impact	Development of local supply of digital solutions and elaboration of differential competitive levers to boost industry and exports

Source: Digital Transformation Monitor

Connected industry as a multiplier for growth

“Connected Industry 4.0 (CI 4.0)” was announced in 2014 aiming at digitising and enhancing competitiveness of Spain’s industrial sector. The initiative equally seeks to provide a strategy to support companies in their digital transformation². For the year 2016, the government allocated €97.5 million in loans for innovative and research projects targeting industrial enterprises, as well as €68 million (loans and direct aid) for ICT companies and €10 million for innovative clusters.

Despite initial set-up as a public-private partnership, CI 4.0 is driven by the General Secretary of Industry and SME. Next to the main industrial players, also experts belonging to tech companies, research and civil society are involved in CI 4.0.³

This Spanish government has allocated significant resources in ensuring that a Spanish model responding to the industry specific challenges is developed. Compared to related policies in Europe, the uniqueness of CI 4.0 concerns its particular focus on supporting the implementation of digital transformation projects by providing support to SMEs and micro enterprises as well as providing a personalised service to guide SMEs in this process. Meanwhile, developing a holistic model with the help of a wide range of stakeholders from different backgrounds has proven to be a key challenge in this policy initiative.

Joint action for industry digitisation

CI 4.0 is Spain’s response to increasingly globalised, demanding and competitive markets. Altogether eight core challenges and competitive requirements of Industry 4.0 are defined where digital enablers play a vital role, e.g. optimisation of supply chains, flexibility and efficiency of production means, etc.

CI 4.0 is linked to the Agenda for Strengthening the Industrial Sector in Spain. The Agenda introduced measures ranging from improving key production factors with impacts on the competitiveness of industrial enterprises to innovation actions and digital transformation support.⁴

As one of the core themes of the Agenda, the digitalisation content included a particular design and implementation that gradually turned into the development of a national strategy, today titled Connected Industry 4.0.

“The strategy (...) enables digital transformation of the industry because it aims to lay the groundwork to help companies (...) not digitized.” –

J.M Soria, former Minister of Industry, Energy and Tourism

Developing local supply of digital solutions

The main objectives of CI 4.0 are threefold:

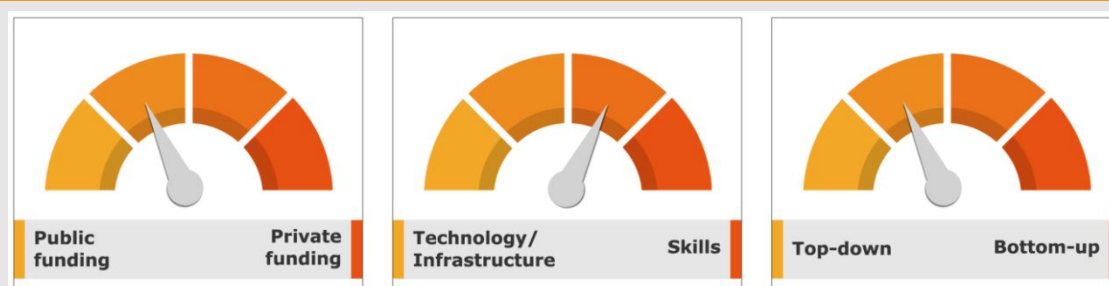
- to increase the industrial added value and employment in the sector,
- to encourage the Spanish model for the industry of the future and
- develop the local supply of digital solutions and to develop differential competitive levers to promote the Spanish industry and boost exports.

Pushed by the state, handed over to industry

The initiative is defined as a public-private initiative, yet driven and financed to higher degrees by the state. In the future, the government seeks to increase industry’s responsibilities in terms of content provision and financial support. Despite the coverage of new technologies, CI 4.0 is more centred on the development of skills as well as knowledge sharing.

Directed by the state, the programme follows a rather top-down structure with bottom-up incentives to be provided over the upcoming years.

Policy levers for Spain’s Industria Conectada 4.0



Source: Digital Transformation Monitor

Maximum funding rates for project call on Industria Conectada 4.0

Type of project	Non-SME	SMEs	Micro-enterprises
Industrial research	Max. 50%	Max. 60%	Max. 70%
Experimental development	Max. 25%	Max. 35%	Max. 45%
SME innovation projects	n.a.	Max. 50%	Max. 50%

Source: Digital Transformation Monitor

Main activities - educate, cooperate and enable

Connected Industry 4.0 establishes four lines of action with a view to speed up the digitisation of the Spanish industry enhancing both, the demand and supply of digital enablers. Given the insufficient knowledge of digitisation among enterprises, awareness raising and training regarding the benefits and required skills of digitalisation lay the groundwork of CI 4.0.

To stimulate intra-enterprise collaboration and optimal transfer between technology and industry, CI 4.0 creates multidisciplinary, collaborative environments and platforms seeking to develop new collaboration tools and sector specific solutions. A main focus is on digital enablers: CI 4.0 promotes the development and innovation of digital enablers and help industry overcome barriers to implement digital enablers, among others through 4.0 research projects.

Through its research project calls and the advisory scheme the initiative targets industrial enterprises seeking to employ digital technologies in their products and services. Enterprises can apply for four main types of projects: Industrial research projects; experimental development projects and innovation projects for SME organization and processes.

A clear distinction is made between the maximum support granted to SMEs and those granted to micro enterprises.

The public injection

CI 4.0 was established as a new entity to lead and coordinate the various actions from government. For the year 2016, €97.5 million of new capital have been earmarked to finance innovation and research projects for industrial enterprises, mainly SMEs and micro enterprises, on the basis of calls for proposals.

Depending on the research theme, between 25% and 70% of the project costs are covered by project loans. In addition, €68 million (loans and direct aid) for ICT companies and €10 million for innovative clusters are provided under related industry 4.0 programmes.

These funding levels come on top of an additional €105 million made available for 4.0 projects under the Competitiveness Programme. The programme advising companies in their digital transformation is financed by the government.

Since the programme was piloted this year only, the size of the funds to be allocated by the government for the upcoming year is still unknown, yet an increase in funding can be expected. In addition, external providers support the implementation of the different areas through a tendering process.

Three core private partners & market-based instruments

A public-private-partnership was set up for the development of CI's 4.0 strategy during a period of 1.5 years. The partnership involved three private partners - Santander bank, Telefónica and Indra Systems - with all of them contributing proprietary funds.

In the future, a closer collaboration with these partners, again in the form of a public-private-partnership, is envisaged with regard to the governance of the programme. What such collaboration will look like in practice, is still unknown.

CI 4.0's strategy to ensure private financing is based on a shift from traditional project financing towards market-based financing instruments, i.e. loans.

Although the results of the project calls' assessment are not yet available, the government expects a minimum leverage of €2 private investment for every €1 of public funding.

Target audience - business with industry activity

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Concept and focus areas - digital enablers to boost competitiveness

A central theme of the initiative is to provide industrial companies with information and implementation support to exploit the opportunities provided by Industry 4.0 in Spain.

Furthermore, digital enablers play a key role in Spain's Industry 4.0 model. Divided into three main categories - intra and inter-enterprise application, communication and data treatment and hybridisation of the physical and the digital - digital enablers refer to the main digital technologies driving industry digitisation forward.

The initiative prioritises intra and inter-enterprise enablers, e.g. digital platforms, big data, collaborative applications, etc.

Creating a Spanish model

Creating a specific model in line with the industrial reality of Spain, rather than imitating schemes of other EU countries, has allowed the initiative to spark the interest and pick up momentum from the private sector.

Behind this lies the recognition of Spain's industrial enterprises that the government is interested in tackling country specific obstacles and unlock the full potential of digital technologies for Spain's industrial competitiveness. From the four main working lines, raising awareness and dissemination is seen to be most critical for the success of CI 4.0.

Given the lack of information on the implication of connected industries for the future, enhancing the visibility of digitisation's benefits, particularly for SMEs, can trigger a chain reaction in enterprises' perceived need to digitise processes, products and services.



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SWOT Matrix for Spain's Industria Conectada 4.0

Strength

- Strong SME and micro-enterprise focus; SME funding on the basis of repayable loans as innovative, market-driven feature
- State as driving force giving significant financial backing.
- Replicability of public-private co-operation at a smaller scale

Weaknesses

- Implementation plan and target setting could be more clearly defined

Opportunities

- Enhancing the visibility of digitisation's benefits for target groups can trigger a chain reaction in enterprises

Threats

- Risk of insufficient scale up by private partners
- Top-down approach can lead to missing the full range of SME needs

Source: Digital Transformation Monitor

Partnering with industry

From a policy design perspective, it was rapidly agreed that the best formula to establish the model of the initiative would be in the form of a public-private-partnership supported by the Ministry of Industry and the Directorates of Industry and SMEs as well as Telecommunication and Information Society.



In order to facilitate coordination and ensure efficiency, a small, strategic group of private partners was set up composed of the Santander bank – providing the digital financing knowledge, Telefonica – as the telecommunication partner, and Indra – as the technological consultancy managing the work. Once the private partners agreed on allocating the financial contribution, the initiative was launched.

The precise Spanish model was designed in an attempt to serve as an example of replicable success that can be adopted by all sectors and companies.⁵ The model was further defined against five premises including a focus on strategic sectors and local development potential, capability development, a focus on SMEs, key enablers focus used to streamline digitisation of sectors and the sustainability factors in terms of developing a long-term vision of digital transformation.

First consult, then consolidate

In a first phase, the strategy and guidelines for the initiative were defined, including action lines and the governance model, to allow for a smooth implementation.

During a consultation process of almost five months CI 4.0 held a series of workshops and meetings involving public and private organisations, scientific, academic, political parties, civil society and trade unions.

The main objective was to obtain feedback and further inspiration as well as to ensure that the initiative would be supported by all the different stakeholders. Despite this consultation process, large enterprises - such as Santander, Indra and Telefónica – were more heavily involved in shaping the programme than academia and social actors.

First challenges

Given the infant stage of the initiative's implementation since 2015, only few barriers have been identified today. Ensuring the participation of different actors and stakeholders in the programme whilst covering all the different industries has been challenging. In the course of CI 4.0's further implementation additional barriers and/or obstacles will emerge



First results

With the first calls published in June 2016, quantitative results from the call have not yet been released by the Ministry of Industry and SMEs.

From a qualitative perspective, the Ministry has however observed a high degree of interest and awareness concerning the programme, through many questions asked on the website and interaction with industry associations.

Inspired by Europe, built in Spain

While the Spanish CI 4.0 is neither the first nor the only Industry 4.0 initiative of its kind, special efforts were dedicated to creating a Spanish model addressing the industry specific challenges of the country.

Unlike other countries that focus on replicating the initiative of their European peers, Spain's CI 4.0 was developed on a specific strategy following proprietary research.

Nevertheless, the initiative was inspired by the initiatives of other EU countries as well as the EU's public-private-partnerships, in particular with regard to their global and integral approach to cover industry digitisation and stakeholders from different backgrounds.

Consolidating the Spanish model

Rather than learning yet from CI 4.0's implementation, a series of experiences from developing the Spanish industry 4.0 model can be outlined.

The consultation process ensured that the views of a wide range of different stakeholders fed into the definition of the Spanish model. The selected two-stage approach – to provide initial momentum through public institutions and scale up the support given by private industries has proven to be successful. However, the envisaged shift towards a stronger participation of the private sector in CI 4.0's implementation is yet to be deepened.

References

¹ Indra, Santander and Telefónica – top 10 companies of Spanish stock exchange <http://www.bolsamadrid.es/esp/asp/Mercados/Precios.aspx?indice=ESI100000000&punto=indice>

² <http://www.partners.es/en/industry-connected-4-0>

³ Boletín Oficial 08/06/2016 Orden IET/895/2016 - <https://www.boe.es/buscar/doc.php?id=BOE-A-2016-5615>

⁴ <http://www.minetur.gob.es/es-es/gabineteprensa/notasprensa/2015/documentos/dossier%20industria%20conectada%204.0.pdf>



About the Digital Transformation Monitor

The Digital Transformation Monitor aims to foster the knowledge base on the state of play and evolution of digital transformation in Europe. The site provides a monitoring mechanism to examine key trends in digital transformation. It offers a unique insight into statistics and initiatives to support digital transformation, as well as reports on key industrial and technological opportunities, challenges and policy initiatives related to digital transformation.

Web page: <https://ec.europa.eu/growth/tools-databases/dem/>

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